

Appendix A

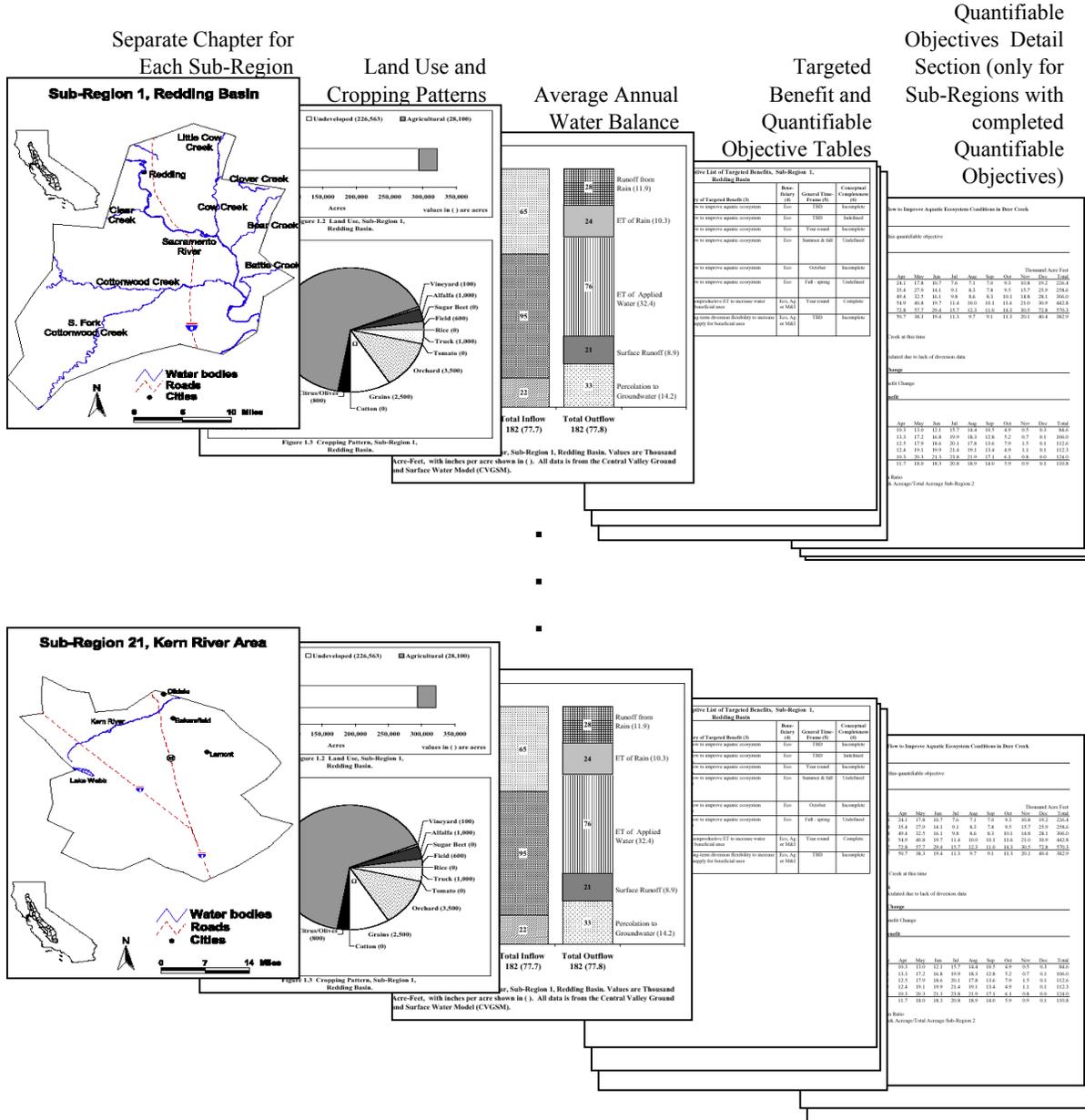
Complete List of Quantifiable Objectives by Sub-Region

Appendix A contains a list of the completed and the potential Quantifiable Objectives (QOs). To-date, 196 potential QOs have been identified. Of these, approximately 50 have been completed. WUE proposals that incorporate completed QOs will be given extra weight in the selection process.

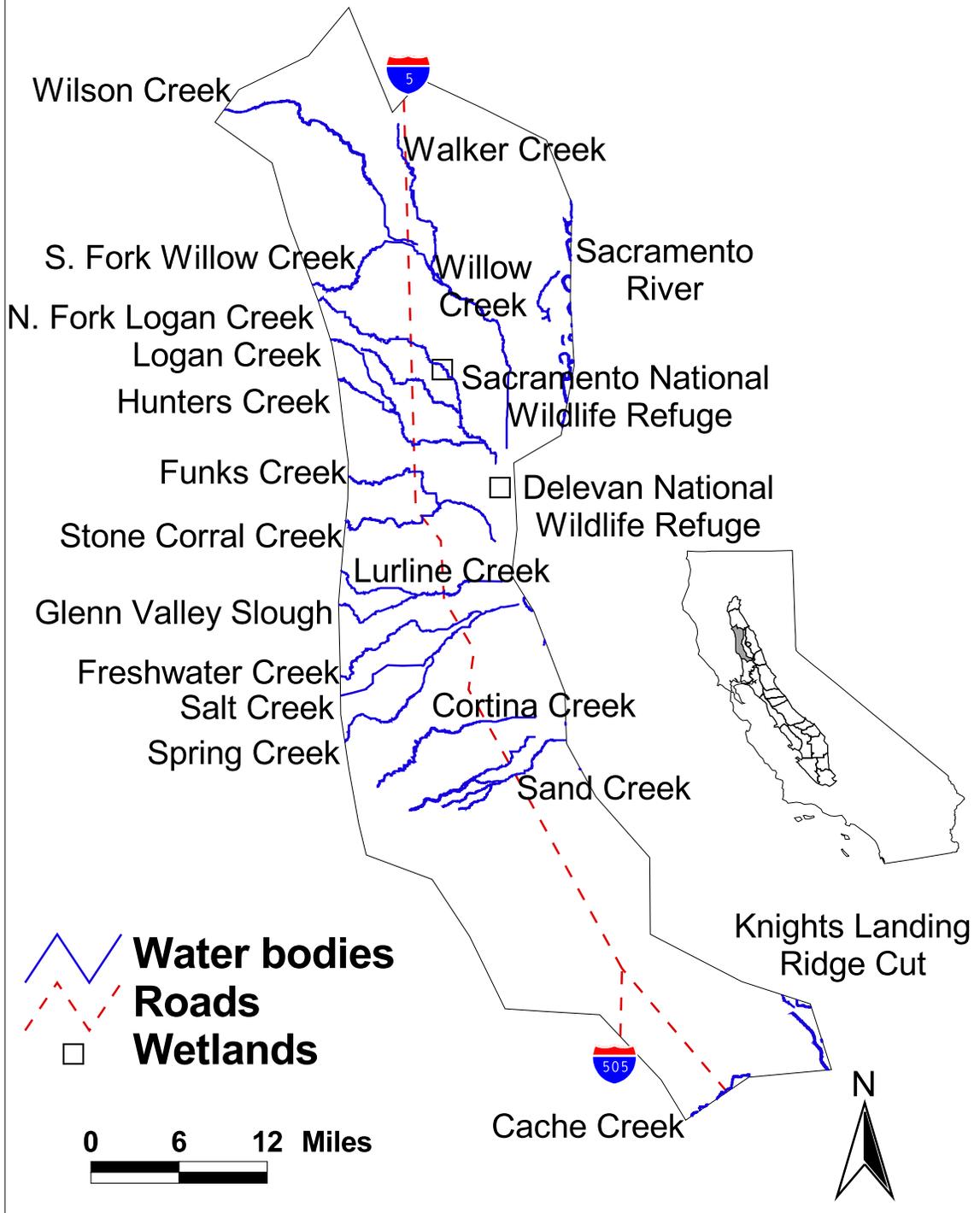
Readily available data does not exist to allow completion of the remaining QOs. However, approximately 45 of the uncompleted QOs have been identified as high priority, and proposals that are linked to these priority outcomes (or Targeted Benefits) will also receive extra weight in the selections (although not as much weight as those that incorporate completed QOs).

Appendix A is organized into 21 chapters that correspond to the 21 Sub-Regions defined in the QO analysis. Each chapter contains background information and details as illustrated in Figure A.I.

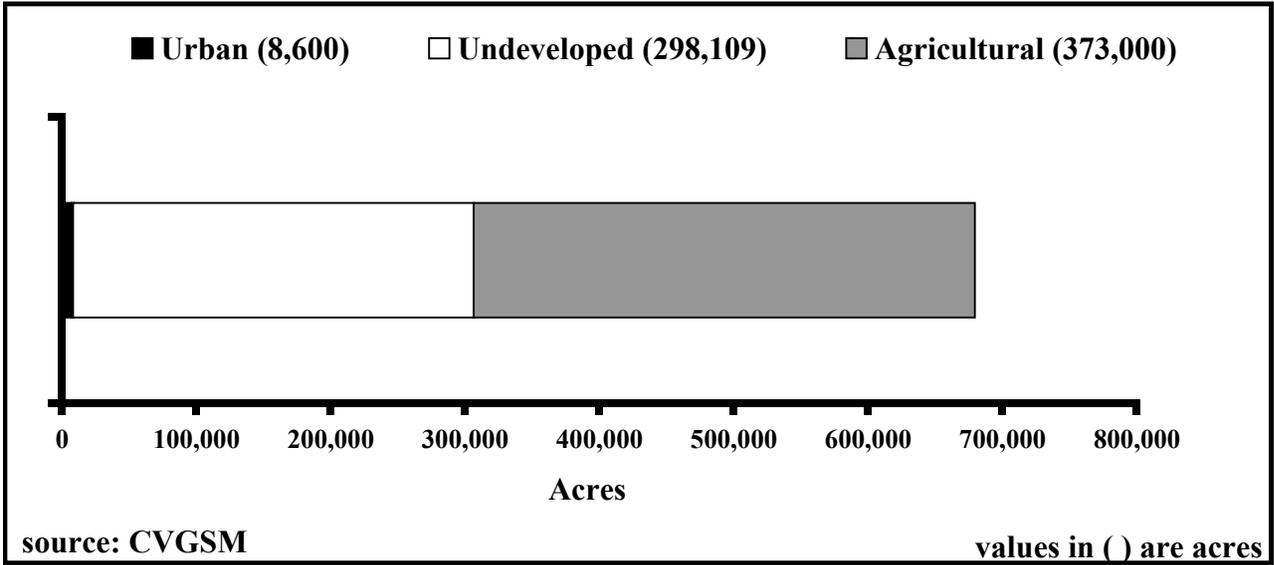
Figure A.I. Organization of Appendix A



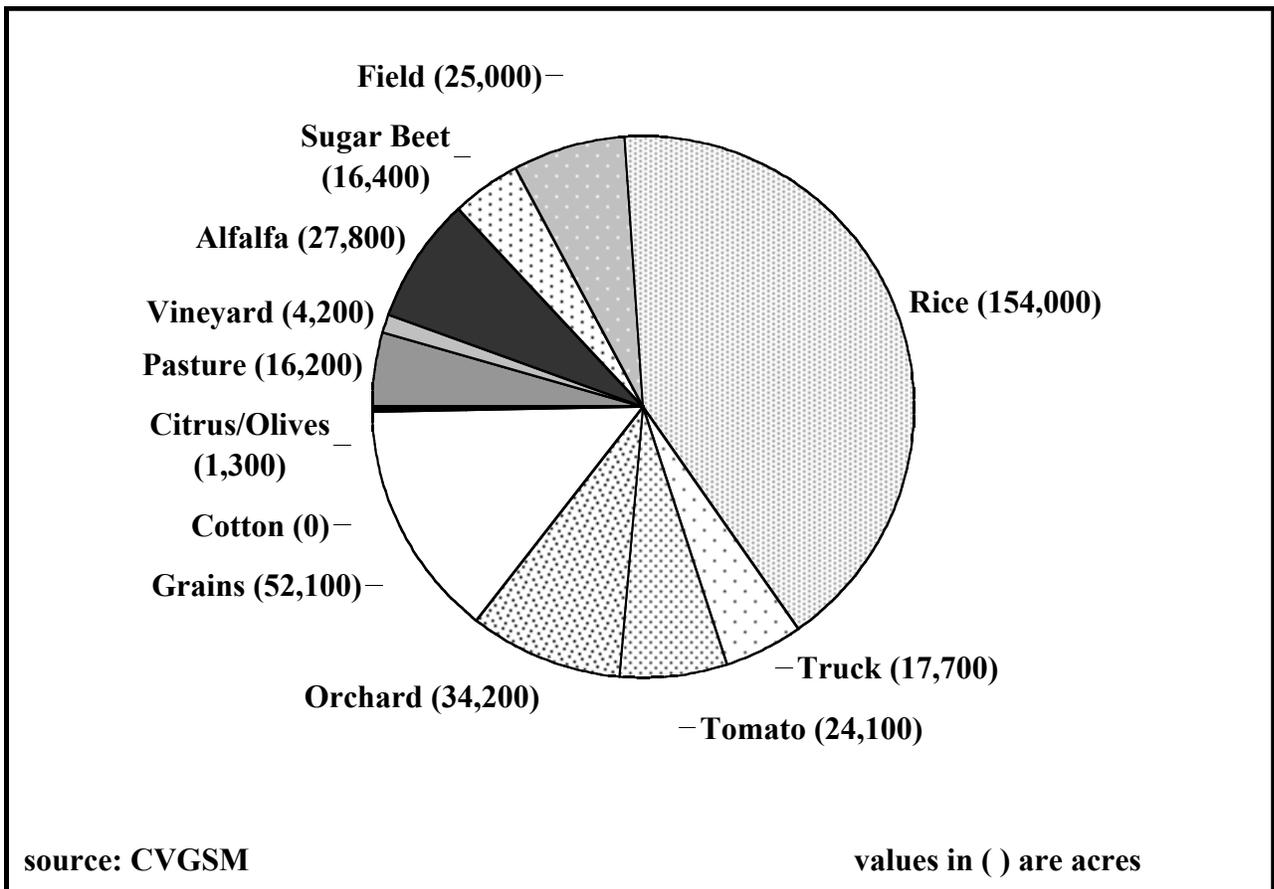
Sub-Region 3, Sacramento Valley, Colusa Basin



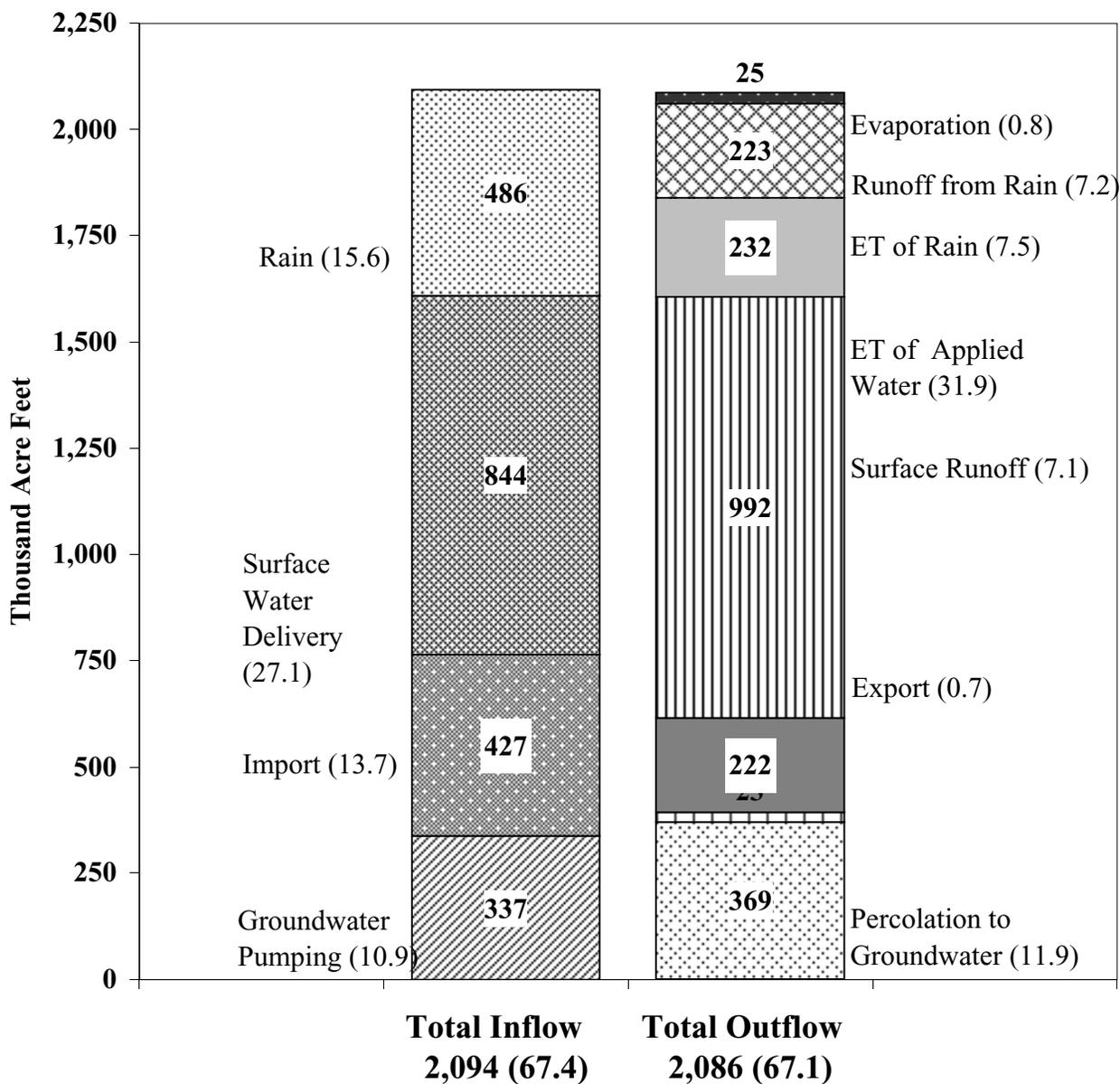
**Figure A.3.2 Land Use, Sub-Region 3,
Sacramento Valley, Colusa Basin.**



**Figure A.3.3 Cropping Pattern, Sub-Region 3,
Sacramento Valley, Colusa Basin.**



Sub-Region 3 Water Balance



Farm Water Balance, Average Year, Sub-Region 3, Sacramento Valley, Colusa Basin. Values are Thousand Acre-Feet, with inches per acre shown in (.). All data is from the Central Valley Ground and Surface Water Model (CVGSM).

**Table A.3.1. Descriptive List of Targeted Benefits, Sub-Region 3,
Sacramento Valley, Colusa Basin**

TB # (1) [duplicate]	Location (2)	Category of Targeted Benefit (3)	Bene- ficiary (4)	General Time- Frame (5)	Conceptual Completeness (6)
20 [6, 13, 30, 57, 75]	Sacramento River below Keswick	Flow: Provide flow to improve aquatic ecosystem conditions	Eco	Fall - spring	Undefined
21	Colusa Drain	Quality: Reduce group A pesticides to enhance and maintain beneficial uses of water	Eco or M&I	TBD	Complete
22	Colusa Drain	Quality: Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	TBD	Complete
23 [15, 31]	Sacramento River	Quality: Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	TBD	Complete
24	Colusa Drain	Quality: Reduce salinity to enhance and maintain beneficial uses of water	Ag, M&I	Year round	Complete
25	All affected lands	Quantity: Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Year round	Complete
26	All suitable lands	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco, Ag or M&I	TBD	Incomplete
27 [35, 48, 54, 65, 73]	Wetlands	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Variable	Incomplete
28	Sacramento & Delevan National Wildlife Refuge	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Variable (mostly winter)	Incomplete
29	Salt affected soils	Quantity: Provide long-term diversion flexibility to increase the water supply for beneficial uses	Ag	Irrigation season	Incomplete

**Table A.3.2. Quantified Targeted Benefits, Sub-Region 3,
Sacramento Valley, Colusa Basin**

TB # (1) [duplicate]	Source and Description of Quantified Targeted Benefit (7)
20 [6, 13, 30, 57, 75]	ERPP: More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.
21	303(d): Reduce _____ [Group A pesticide] to _____.
22	303(d): Reduce carbofuran/furadan, malathion, methyl parathion to _____.
23 [15, 31]	303(d): Reduce diazinon to _____.
24	Core: Reduce electrical conductivity to less than ____ (dS/m) to allow municipal treatment facilities the flexibility to meet the potential long-term regulatory scenario.
25	Core: Reduce unwanted ET by _____ acre-feet per year.
26	Core: Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to _____ acre feet per year during periods of shortage; and increasing flows to groundwater to _____ acre feet per year during periods of excess.
27 [35, 48, 54, 65, 73]	ERPP/ Cooperatively manage _____ acres of ag lands and restore _____ acres of seasonal, semipermanent, and Core: permanent wetlands consistent with the CV Habitat Jt Venture and N. Am. Waterfowl Mgmt. Plan.
28	Core: Provide water for the Sacramento National Wildlife Refuge. The following water quantities are required for the following wetland types: seasonal marsh, 4.1 - 8.5 acre-feet/acre; permanent and semipermanent marsh or brood pond, 7.4 - 13.25 acre-feet/acre; managed riparian, 4.0 - 8.0 acre-feet/acre; upland, 4.25 acre-feet/acre; and reverse-cycle, 5.25 acre-feet/acre
29	Core: While remaining within the salinity threshold for a given crop, take advantage of periodic opportunities to reduce salinity impacts by increasing leaching by _____ during periods of excess supply and by reducing by _____ leaching during water short periods.

**Table A.3.3. Quantified Targeted Benefit Change, Sub-Region 3,
Sacramento Valley, Colusa Basin**

TB # (1) [duplicate]	Reference Condition		Quantified Targeted Benefit		Quantified Targeted Benefit Change			Specific Time-Frame (11)
	Data Source (8)	Availability (9)	Data Source (8)	Data Availability (9)	Data Source (8)	Availability (9)	Range of Values (10)	
20 [6, 13, 30, 57, 75]	CVGSM	Unproven-precise	ERPP	Rough estimate	Calculated	Rough estimate	44 - 180 TAF/yr	Year round Fall
21	TBD	TBD	TBD	Proven - precise	Calculated	TBD	TBD	TBD
22	TBD	TBD	TBD	Proven - precise	Calculated	TBD	TBD	TBD
23 [15, 31]	TBD	TBD	TBD	Proven - precise	Calculated	TBD	TBD	TBD
24	RWQCB	Proven - precise	RWQCB	Proven - precise	Calculated	Proven - precise	TBD	Year round
25	CVGSM	Unproven-precise	Core	Rough estimate	Calculated	Rough estimate	5.1	TBD
26	CVGSM	Unproven-precise	Core	Rough estimate	Calculated	Rough estimate	TBD	TBD
27 [35, 48, 54, 65, 73]	ERPP	TBD	ERPP	TBD	Calculated	TBD	7.9 TAF/yr	TBD
28	RWS (ICP)	Insufficient	RWS (ICP)	Unproven - precise	Not available	Insufficient	Not available	Not available
29	Core	Rough estimate	Core	Rough estimate	Calculated	Rough estimate	TBD	TBD

**Table A.3.4. Quantifiable Objective, Sub-Region 3,
Sacramento Valley, Colusa Basin**

TB # (1) [duplicate]	Achievable Agricultural Potential (12)	Quantifiable Objective (13)
20 [6, 13, 30, 57, 75]	1,044 - 1,897 TAF per year	44 - 180 TAF per year
21	TBD	TBD
22	TBD	TBD
23 [15, 31]	TBD	TBD
24	TBD	TBD
25	5.1 TAF/Yr plus additional water generated through reduction in application through improved irrigation systems	5.1 TAF/Yr plus additional water generated through reduction in application through improved irrigation systems
26	TBD	TBD
27 [35, 48, 54, 65, 73]	7.9 TAF per year	7.9 TAF per year
28	TBD	TBD
29	TBD	TBD

**Table A.3.5. Affected Flow Paths and Possible Actions, Sub-Region 3,
Sacramento Valley, Colusa Basin**

TB # (1) [duplicate]	Affected Flow Paths (14)	Possible Actions (provided as examples; proposers are encouraged to consider local actions that are not listed) (15)
20 [6, 13, 30, 57, 75]	Surface and Groundwater Return	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
21	TBD	TBD
22	Surface and Groundwater Return	cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.
23 [15, 31]	Surface and Groundwater Return	cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.
24	TBD	TBD
25	ETAW	Reduce ET flows using improved irrigation methods, such as drip irrigation, and planting densities.
26	TBD	TBD
27 [35, 48, 54, 65, 73]	Surface water return and Percolation to Groundwater:	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
28	TBD	TBD
29	TBD	TBD

Detail 20, Flow/Timing Sacramento River

Step 1. Quantified Targets

A. Flow Target for Sacramento River

source: CVGSM		Thousand Acre Feet											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	179.0	179.0	179.0	---	---	---	---	138.0	138.0	138.0	951.0
2) Dry	---	---	179.0	179.0	179.0	---	---	---	---	138.0	138.0	138.0	951.0
3) B Norm	---	---	179.0	346.0	346.0	---	---	---	---	138.0	138.0	138.0	1285.0
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	---
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	---
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	---

Step 2. Reference Condition

A. Sacramento River Flows

source: CVGSM		Thousand Acre Feet											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	295.6	307.7	394.9	435.1	422.2	399.0	437.5	393.8	263.1	258.4	277.9	282.8	4167.9
2) Dry	312.4	412.4	374.1	390.8	447.9	455.5	534.9	491.5	323.6	307.9	318.4	390.1	4759.5
3) B Norm	490.6	438.4	417.4	497.2	492.7	484.2	544.5	504.0	360.1	340.8	320.6	336.5	5226.9
4) A Norm	683.8	912.4	819.2	532.2	499.5	461.3	532.7	500.8	358.7	291.5	345.2	424.8	6362.2
5) Wet	1076.5	1177.6	869.9	797.8	727.2	601.2	606.9	598.3	474.8	369.4	486.8	878.4	8664.7
Wtd Avg.	627.4	702.1	594.5	560.5	545.4	499.0	545.8	515.0	373.7	324.7	368.3	518.4	6174.8

B. Sacramento River Total Diversion - Riparian

source: CVGSM		Thousand Acre Feet											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	1.8	1.9	11.1	110.8	154.3	153.4	155.2	135.9	64.3	25.7	3.3	1.7	819.4
2) Dry	2.5	2.5	7.0	100.3	166.4	180.3	189.4	173.0	76.5	24.4	5.4	3.5	931.3
3) B Norm	2.1	2.6	4.6	85.9	167.1	175.4	189.4	172.7	79.8	26.3	6.9	2.9	915.8
4) A Norm	3.4	2.1	3.1	74.6	168.5	180.9	192.9	175.5	79.6	25.2	3.7	3.3	912.7
5) Wet	2.4	2.2	3.7	65.4	162.2	180.2	191.3	177.3	82.8	23.8	3.9	2.3	897.5
Wtd Avg.	2.4	2.3	5.6	84.8	164.0	175.8	186.0	169.7	77.9	24.9	4.8	2.8	900.8

C. Sacramento River Total Diversion - Corning Canal

source: CVGSM		Thousand Acre Feet											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.11	0.31	0.34	1.36	2.57	2.50	3.52	3.04	1.91	0.66	0.12	0.20	16.64
2) Dry	0.00	0.01	0.11	0.83	1.94	1.76	2.75	2.53	1.31	0.34	0.01	0.00	11.58
3) B Norm	0.00	0.06	0.18	0.70	1.29	1.56	1.74	1.39	1.04	0.53	0.11	0.01	8.59
4) A Norm	0.00	0.00	0.03	0.59	1.72	2.14	2.77	2.52	1.44	0.41	0.04	0.01	11.69
5) Wet	0.00	0.05	0.20	0.88	2.61	2.78	3.78	3.31	2.19	0.73	0.04	0.00	16.58
Wtd Avg.	0.01	0.07	0.17	0.86	2.07	2.18	2.96	2.60	1.62	0.55	0.06	0.03	13.17

D. Sacramento River Total Diversion - Tehama-Colusa Canal

source: CVGSM		Thousand Acre Feet											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.07	0.08	0.72	7.80	15.63	14.52	24.23	12.98	6.58	1.23	0.02	0.14	84.01
2) Dry	0.00	0.00	0.10	5.83	14.78	11.48	21.55	12.88	6.48	1.33	0.03	0.00	74.43
3) B Norm	0.02	0.01	0.01	1.29	2.14	2.57	4.68	4.05	1.02	0.04	0.02	0.01	15.86
4) A Norm	0.27	0.00	0.04	2.62	10.46	12.44	17.93	10.90	3.41	0.83	0.39	0.67	59.97
5) Wet	0.00	0.14	0.08	4.44	11.26	8.74	16.42	9.81	4.93	1.01	0.02	0.00	56.85
Wtd Avg.	0.05	0.06	0.15	4.32	10.69	9.36	16.44	9.91	4.51	0.89	0.07	0.11	56.56

E. Sacramento River Total Diversion - Glenn-Colusa Canal

source: CVGSM

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.0	1.1	75.2	94.0	91.1	94.8	93.0	41.2	17.7	3.4	0.2	511.8
2) Dry	0.0	0.0	6.4	77.9	105.6	108.1	112.1	110.6	51.9	25.6	9.8	1.4	609.4
3) B Norm	0.2	0.0	5.9	70.4	117.3	119.1	126.8	118.8	63.9	30.6	8.6	1.7	663.3
4) A Norm	0.0	0.0	1.6	57.3	108.3	109.9	115.1	112.3	57.7	26.2	5.0	0.0	593.4
5) Wet	0.0	0.0	3.7	65.0	123.3	122.8	127.7	125.6	64.6	26.2	3.2	0.4	662.6
Wtd Avg.	0.0	0.0	4.1	69.4	112.2	112.8	118.0	114.8	57.6	25.8	6.1	0.8	621.7

F. Sacramento River Total Diversion - Right Bank Diverters

source: CVGSM

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.99	12.73	16.24	16.68	17.03	14.11	5.60	1.21	0.00	0.00	84.60
2) Dry	0.01	0.00	0.11	11.29	16.32	17.96	19.12	16.73	5.78	1.33	0.21	0.55	89.40
3) B Norm	0.16	0.00	0.23	9.80	12.85	13.31	15.25	11.94	4.45	1.09	0.28	0.57	69.92
4) A Norm	0.06	0.00	0.02	8.83	21.09	21.19	22.29	19.21	7.51	1.44	0.34	0.73	102.72
5) Wet	0.01	0.00	0.11	10.50	17.18	16.89	17.69	14.93	4.79	1.49	0.80	0.61	85.01
Wtd Avg.	0.05	0.00	0.24	10.61	16.49	16.94	18.04	15.19	5.41	1.33	0.39	0.52	85.22

G. Sacramento River Total Diversion - South Sutter Diversion

source: CVGSM

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.22	3.78	8.67	8.33	8.67	7.78	3.33	0.56	0.00	0.00	41.33
2) Dry	0.00	0.00	0.00	3.13	8.00	7.50	8.19	8.31	3.31	0.50	0.00	0.00	38.94
3) B Norm	0.00	0.00	0.29	3.36	6.14	6.86	7.36	6.21	2.21	0.64	0.07	0.00	33.14
4) A Norm	0.00	0.00	0.00	2.00	8.44	9.00	9.44	9.11	3.78	0.33	0.00	0.00	42.11
5) Wet	0.00	0.00	0.05	3.90	12.86	12.29	13.43	13.05	5.86	1.19	0.00	0.00	62.62
Wtd Avg.	0.00	0.00	0.10	3.35	9.25	9.13	9.84	9.36	3.93	0.72	0.01	0.00	45.70

H. Reference Condition for Sacramento River

source: calculated = Step 2A. - Step 2B. - Step 2C. - Step 2D. - Step 2E. - Step 2F. - Step 2G.

	TAF												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	293.6	305.4	380.3	223.4	130.8	112.4	134.1	127.0	140.2	211.4	271.0	280.6	2610.1
2) Dry	309.9	409.9	360.3	191.5	134.9	128.4	181.7	167.5	178.3	254.5	303.0	384.6	3004.4
3) B Norm	488.1	435.7	406.2	325.7	185.9	165.4	199.3	188.9	207.7	281.6	304.6	331.3	3520.3
4) A Norm	680.1	910.3	814.4	386.2	181.0	125.7	172.2	171.3	205.3	237.0	335.8	420.2	4639.5
5) Wet	1074.1	1175.2	862.0	647.7	397.7	257.5	236.6	254.4	309.6	315.0	478.8	875.0	6883.6
Wtd Avg.	624.8	699.7	584.1	387.1	230.7	172.8	194.5	193.5	222.8	270.5	356.9	514.1	4451.6

Step 3. Quantified Targeted Benefit Change

A. Quantified Targeted Benefit Change

source: calculated: = Step 1A. - Step 2H.

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	---	48.2	---	---	---	---	---	---	---	48.2
2) Dry	---	---	---	---	44.1	---	---	---	---	---	---	---	44.1
3) B Norm	---	---	---	20.3	160.1	---	---	---	---	---	---	---	180.4
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	---
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	---
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	---

Step 4. Area Affected By Targeted Benefit

A. Total Diversion Sub-Region 1

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	0.2	1.0	16.0	20.8	23.0	25.8	24.5	21.2	15.9	1.2	0.2	149.7
2) Dry	0.0	0.0	0.6	14.9	23.6	25.2	27.4	26.2	23.1	17.0	2.2	0.8	161.1
3) B Norm	0.0	0.0	0.3	14.2	23.9	25.4	27.0	25.8	22.5	18.8	2.2	0.2	160.4
4) A Norm	1.0	0.0	0.0	12.7	21.1	25.9	27.7	27.0	23.1	16.4	0.6	0.1	155.8
5) Wet	0.0	0.0	0.4	11.6	22.6	25.9	28.4	27.4	24.7	16.2	0.7	0.0	158.0
Wtd Avg.	0.2	0.0	0.4	13.6	22.7	25.3	27.4	26.4	23.2	16.9	1.4	0.3	157.8

B. Sub-Region 1 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4A.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.00	0.63	0.92	0.98	0.97	0.95	0.94	0.95	0.97	0.98	0.90	0.53
2) Dry	0.00	0.00	0.96	0.99	0.98	0.98	0.96	0.97	0.98	0.99	0.98	0.94
3) B Norm	0.00	0.00	0.98	0.99	0.99	0.98	0.98	0.98	0.99	0.99	0.97	0.94
4) A Norm	0.97	0.00	0.00	0.99	0.98	0.97	0.96	0.96	0.98	0.99	0.91	0.77
5) Wet	0.00	0.00	0.90	0.99	0.97	0.97	0.96	0.96	0.97	0.99	0.93	0.00
Wtd Avg.	0.13	0.08	0.81	0.99	0.98	0.97	0.96	0.97	0.98	0.99	0.94	0.58

C. Total Diversion Sub-Region 2

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.22	0.42	2.23	10.29	13.04	12.14	15.74	14.41	10.47	4.88	0.46	0.33	84.64
2) Dry	0.00	0.01	1.80	13.27	17.21	16.84	19.90	18.30	12.75	5.15	0.69	0.06	105.99
3) B Norm	0.00	0.06	2.54	12.49	17.93	18.56	20.11	17.75	13.61	7.89	1.54	0.08	112.55
4) A Norm	0.00	0.00	0.92	12.37	19.07	19.94	21.36	19.10	13.44	4.87	1.09	0.12	112.28
5) Wet	0.00	0.10	2.39	10.31	20.25	21.32	23.80	21.85	17.10	6.06	0.80	0.00	123.99
Wtd Avg.	0.03	0.10	2.07	11.70	17.98	18.35	20.78	18.87	14.04	5.91	0.92	0.09	110.83

D. Sub-Region 2 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4C.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.50	0.74	0.15	0.18	0.56	0.63	1.00	1.02	0.63	0.13	0.27	0.62
2) Dry	---	1.00	0.06	0.06	0.14	0.13	0.16	0.16	0.10	0.07	0.01	0.00
3) B Norm	---	1.00	0.07	0.06	0.07	0.09	0.09	0.09	0.08	0.07	0.07	0.09
4) A Norm	---	---	0.04	0.05	0.10	0.13	0.16	0.15	0.11	0.21	0.09	0.09
5) Wet	---	0.50	0.08	0.09	0.15	0.15	0.18	0.17	0.13	0.12	0.05	1.00
Wtd Avg.	---	---	0.08	0.08	0.18	0.19	0.26	0.26	0.18	0.11	0.08	0.42

E. Total Diversion Sub-Region 3

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	0.1	2.8	95.7	125.5	121.9	135.3	119.3	53.0	20.1	3.5	0.3	677.5
2) Dry	0.0	0.0	6.6	95.1	136.7	137.5	152.8	140.2	64.1	28.2	10.0	2.0	773.2
3) B Norm	0.4	0.0	6.1	81.5	132.3	134.9	146.7	134.8	69.4	31.7	8.9	2.3	749.0
4) A Norm	0.3	0.0	1.6	68.8	139.9	143.5	155.3	142.4	68.6	28.4	5.7	1.4	755.9
5) Wet	0.0	0.1	3.9	79.9	151.8	148.4	161.8	150.3	74.3	28.7	4.1	1.0	804.4
Wtd Avg.	0.1	0.1	4.5	84.4	139.3	139.0	152.3	139.7	67.4	28.0	6.6	1.5	763.0

F. Sub-Region 3 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4E.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
2) Dry	1.00	---	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3) B Norm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4) A Norm	1.00	---	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5) Wet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wtd Avg.	1.00	---	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

G. Total Diversion Sub-Region 4

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.2	0.2	7.0	75.5	103.5	99.8	97.9	83.9	31.8	6.3	0.3	0.0	506.5
2) Dry	0.4	0.4	3.8	66.4	108.9	116.5	121.6	109.5	37.7	3.6	0.9	0.4	570.2
3) B Norm	0.3	0.6	1.8	55.8	110.3	114.1	122.8	110.3	40.2	3.6	2.3	0.4	562.4
4) A Norm	0.4	0.3	1.1	50.8	114.9	116.0	124.3	110.9	38.5	4.9	0.3	0.0	562.5
5) Wet	0.5	0.4	1.3	43.0	107.9	118.1	123.6	113.0	41.5	3.8	0.9	0.2	554.2
Wtd Avg.	0.4	0.4	2.7	56.3	109.0	114.3	119.7	107.6	38.7	4.2	1.0	0.3	554.5

H. Sub-Region 4 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4G.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	---
2) Dry	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3) B Norm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
4) A Norm	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
5) Wet	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Wtd Avg.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	---

I. Total Diversion Sub-Region 6

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.99	1.63	6.07	24.12	34.53	32.70	37.63	27.80	14.00	5.12	1.33	0.22	186.16
2) Dry	0.00	0.00	1.72	23.87	43.14	46.30	51.05	41.66	20.81	5.78	2.36	0.36	237.03
3) B Norm	0.10	0.16	2.54	22.44	43.36	47.78	50.06	40.76	20.94	5.79	0.99	0.36	235.28
4) A Norm	0.11	0.11	0.33	16.16	46.11	50.31	51.27	44.04	22.56	4.37	3.00	0.67	239.03
5) Wet	0.14	0.24	1.58	19.54	47.51	53.41	57.56	49.19	28.05	7.53	2.64	0.29	267.69
Wtd Avg.	0.21	0.33	2.23	21.29	43.78	47.51	51.11	42.27	22.38	6.04	2.12	0.36	239.63

J. Sub-Region 6 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4I.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.00	0.00	0.02	0.18	0.24	0.23	0.21	0.24	0.13	0.00	0.00	0.00
2) Dry	---	---	0.04	0.19	0.22	0.24	0.23	0.26	0.15	0.05	0.11	0.88
3) B Norm	0.00	0.45	0.06	0.17	0.23	0.23	0.22	0.23	0.14	0.12	0.29	0.60
4) A Norm	1.00	0.00	0.33	0.14	0.16	0.23	0.23	0.24	0.16	0.10	0.19	0.83
5) Wet	0.00	0.00	0.00	0.09	0.14	0.17	0.16	0.18	0.11	0.06	0.14	0.50
Wtd Avg.	---	---	0.07	0.15	0.19	0.22	0.20	0.23	0.13	0.07	0.15	0.59

K. Total Diversion Sub-Region 7

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	9.78	7.97	11.20	30.03	48.82	52.39	57.52	51.73	31.81	18.40	12.12	10.52	342.30
2) Dry	9.49	8.26	10.31	30.06	52.66	58.82	65.28	61.97	38.93	17.43	10.97	9.68	373.86
3) B Norm	9.35	8.34	11.13	26.02	49.84	55.89	63.18	60.44	39.22	19.73	11.98	9.91	365.02
4) A Norm	9.47	9.66	11.16	20.62	53.01	59.92	66.10	62.70	39.39	16.14	10.86	9.80	368.82
5) Wet	9.96	8.61	11.88	24.30	58.14	64.86	73.98	70.61	44.04	19.97	11.77	10.73	408.85
Wtd Avg.	9.64	8.52	11.18	26.25	53.30	59.37	66.60	63.05	39.68	18.63	11.55	10.17	377.94

L. Sub-Region 7 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4K.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.00	0.00	0.13	0.55	0.56	0.55	0.52	0.50	0.33	0.08	0.00	0.00
2) Dry	0.00	0.00	0.04	0.51	0.56	0.54	0.51	0.50	0.33	0.08	0.00	0.00
3) B Norm	0.00	0.02	0.06	0.49	0.53	0.50	0.51	0.49	0.34	0.06	0.01	0.00
4) A Norm	0.00	0.00	0.00	0.41	0.57	0.55	0.53	0.52	0.38	0.08	0.00	0.05
5) Wet	0.00	0.01	0.00	0.44	0.60	0.56	0.54	0.53	0.37	0.10	0.00	0.01
Wtd Avg.	0.00	0.01	0.04	0.48	0.57	0.54	0.52	0.51	0.35	0.08	0.00	0.01

M. Total Diversion Sub-Region 8

source: CVGSM

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.38	2.89	5.80	13.89	20.43	23.72	24.02	20.93	14.16	11.26	5.02	4.51	150.01
2) Dry	2.92	2.59	4.59	13.19	21.69	27.21	28.44	25.49	18.09	10.98	5.19	3.77	164.15
3) B Norm	2.56	2.59	5.53	14.44	25.54	32.44	32.81	28.34	19.79	13.06	4.64	3.36	185.09
4) A Norm	2.79	2.64	3.48	11.48	22.56	31.88	32.29	28.56	17.98	10.78	4.99	3.10	172.51
5) Wet	3.21	2.74	5.13	11.37	26.28	34.82	38.24	34.70	22.73	13.71	4.85	3.65	201.45
Wtd Avg.	2.98	2.68	4.96	12.76	23.82	30.74	32.24	28.68	19.32	12.24	4.93	3.66	179.00

N. Sub-Region 8 Streamflow Diversion Ratio

source: calculated = Step 2B./Step 4M.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1) Critical	0.46	0.54	0.33	0.18	0.17	0.15	0.16	0.19	0.22	0.25	0.38	0.34
2) Dry	0.71	0.80	0.49	0.20	0.15	0.14	0.16	0.17	0.19	0.25	0.40	0.55
3) B Norm	0.73	0.72	0.37	0.18	0.12	0.12	0.13	0.14	0.18	0.21	0.46	0.59
4) A Norm	0.68	0.67	0.54	0.20	0.15	0.13	0.14	0.16	0.20	0.26	0.45	0.68
5) Wet	0.58	0.63	0.42	0.22	0.13	0.11	0.12	0.13	0.17	0.20	0.39	0.50
Wtd Avg.	0.64	0.68	0.43	0.20	0.14	0.13	0.14	0.15	0.19	0.23	0.41	0.53

Step 5. Water Balance - Flow Path Elements

A. Rain Sub-Region 3 (inflow)

source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B.

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	154.9	114.3	71.2	41.6	54.9	19.5	4.4	22.8	24.9	49.5	77.9	---	635.7
2) Dry	---	---	155.4	65.5	34.2	13.8	8.0	20.1	48.6	51.0	124.3	220.2	741.1
3) B Norm	---	279.3	117.1	73.4	24.7	18.2	14.9	27.1	50.5	69.0	154.0	197.7	1,026.0
4) A Norm	---	---	162.3	65.7	32.9	6.3	8.2	18.1	45.9	105.6	177.5	245.1	867.7
5) Wet	---	231.9	172.3	116.3	25.5	20.7	11.6	25.2	34.3	118.6	225.2	394.2	1,375.8
Wtd Avg.	---	---	142.7	79.5	32.2	16.6	10.1	23.2	41.2	82.1	161.9	---	994.8

B. Surface Water Diversions Sub-Region 3 (inflow) Flow Path Not Affected
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.6	10.3	51.5	335.1	392.4	451.3	525.5	471.3	98.0	36.2	14.5	---	2,389.7
2) Dry	---	---	15.1	281.8	380.3	444.7	458.2	412.8	80.3	41.8	15.0	7.8	2,137.7
3) B Norm	---	4.8	17.2	277.3	379.8	434.5	450.6	401.1	85.7	41.4	15.2	7.6	2,115.0
4) A Norm	---	---	5.3	252.5	370.9	466.6	474.0	420.1	94.5	30.8	15.2	8.2	2,138.1
5) Wet	---	3.1	6.2	214.4	382.7	458.3	474.9	423.8	98.1	31.1	14.8	8.3	2,115.8
Wtd Avg.	---	---	16.3	263.5	381.3	450.5	472.6	422.4	91.0	36.3	14.9	---	2,159.4

C. Import Sub-Region 3 (inflow) Flow Path Not Affected
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.5	4.4	8.2	66.9	65.7	76.6	78.6	69.4	26.0	19.1	13.0	---	431.5
2) Dry	---	---	4.4	74.4	96.5	114.9	116.5	104.1	31.8	23.1	13.2	7.9	586.7
3) B Norm	---	3.3	5.3	79.0	109.5	126.2	131.6	117.9	34.9	23.1	13.7	7.8	652.1
4) A Norm	---	---	2.9	74.3	108.7	135.6	135.2	122.2	38.3	20.5	13.6	8.4	659.8
5) Wet	---	3.0	3.2	60.1	110.7	129.9	132.5	119.8	37.6	21.6	13.6	8.4	640.4
Wtd Avg.	---	---	4.5	70.0	101.0	119.5	121.9	109.5	34.3	21.8	13.5	---	605.6

D. Groundwater Pumping Sub-Region 3 (inflow) Flow Path Not Affected
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.6	4.2	41.6	260.7	292.4	363.8	430.7	361.4	209.8	17.4	1.8	---	1,984.3
2) Dry	---	---	9.2	136.5	178.2	226.7	236.1	194.8	155.2	12.7	1.1	0.7	1,151.3
3) B Norm	---	2.6	8.4	118.0	150.1	190.7	198.1	157.1	149.4	12.9	1.0	1.3	989.4
4) A Norm	---	---	2.8	103.3	139.8	197.3	203.6	162.8	149.7	13.6	1.1	0.9	974.9
5) Wet	---	0.7	3.6	95.8	134.6	178.0	185.5	148.3	149.4	8.8	0.4	1.0	906.1
Wtd Avg.	---	---	10.7	132.2	169.1	218.6	234.1	190.6	158.7	12.3	0.9	---	1,129.5

E. ET Rain Sub-Region 3 (outflow, irrecoverable) Flow Path Not Affected
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	44.0	73.9	55.1	-7.1	35.6	18.5	1.7	16.4	54.0	86.8	45.5	---	424.4
2) Dry	---	---	104.4	3.4	19.0	9.8	5.8	15.2	69.9	89.5	49.3	54.6	420.9
3) B Norm	---	103.9	99.6	5.1	13.1	15.6	9.5	18.3	69.7	93.4	60.6	53.2	541.8
4) A Norm	---	---	121.9	11.9	18.6	2.6	5.1	13.6	67.9	107.6	59.5	59.0	467.7
5) Wet	---	82.9	109.1	33.2	10.8	12.7	7.4	17.3	60.0	105.7	64.7	64.4	568.3
Wtd Avg.	---	---	100.7	12.5	17.4	12.0	6.4	16.4	64.5	97.2	57.1	---	496.8

F. Runoff from Rain Sub-Region 3 (outflow, irrecoverable) Flow Path Not Affected
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	60.5	43.2	22.2	8.8	19.8	3.9	0.7	6.3	6.3	12.2	18.9	---	202.8
2) Dry	---	---	77.0	19.2	7.9	2.6	1.8	5.7	18.8	15.9	43.3	88.4	280.7
3) B Norm	---	152.3	54.6	25.8	5.5	3.2	4.0	9.1	18.5	24.3	55.3	87.4	440.1
4) A Norm	---	---	80.7	20.1	8.4	0.5	1.6	6.1	17.5	39.0	70.9	114.2	359.1
5) Wet	---	140.6	89.8	46.0	5.4	4.1	2.3	8.3	11.6	50.9	99.0	223.4	681.5
Wtd Avg.	---	---	69.7	27.5	8.3	3.1	2.2	7.3	14.7	30.8	63.1	---	435.1

G. ETAW Sub-Region 3 (outflow, irrecoverable)
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Flow Path Not Affected
Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	1.7	12.0	64.4	228.3	334.0	474.2	571.7	477.5	249.2	51.7	14.4	---	2,479.1
2) Dry	---	---	18.3	212.6	318.1	439.3	488.0	407.6	200.3	51.5	13.3	4.2	2,153.2
3) B Norm	---	2.8	20.4	208.1	315.6	424.6	472.9	391.2	197.7	50.1	12.4	3.9	2,099.8
4) A Norm	---	---	7.1	197.6	311.4	444.9	487.9	405.4	206.1	39.8	10.4	2.1	2,112.8
5) Wet	---	1.8	8.8	175.8	320.3	427.6	475.0	394.4	208.5	36.5	6.7	0.2	2,055.7
Wtd Avg.	---	---	20.4	200.6	319.5	438.0	491.9	409.1	209.4	45.1	10.9	---	2,149.9

H. Export Sub-Region 3 (outflow, irrecoverable)
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.6	5.3	8.8	56.0	111.4	137.2	196.9	179.7	35.4	17.3	12.7	---	764.3
2) Dry	---	---	2.9	37.7	65.6	75.3	84.7	79.4	26.3	19.7	12.5	7.4	411.4
3) B Norm	---	3.5	3.4	36.1	55.1	67.5	72.2	66.2	26.7	19.7	13.1	7.2	370.8
4) A Norm	---	---	1.5	33.0	60.0	80.2	89.0	81.4	29.0	19.2	13.0	7.9	414.2
5) Wet	---	3.0	1.8	32.5	69.8	83.0	92.2	84.5	29.9	19.8	13.2	7.9	437.7
Wtd Avg.	---	---	3.3	37.6	70.0	84.8	99.6	91.6	29.0	19.4	13.0	---	457.6

I. Surface Water Return Sub-Region 3 (outflow, recoverable)
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.9	15.0	260.6	181.8	167.1	149.2	132.2	29.5	4.1	0.1	---	940.5
2) Dry	---	---	3.3	143.7	161.5	162.1	132.4	122.1	22.5	4.2	0.1	0.0	751.9
3) B Norm	---	0.1	3.3	135.3	165.1	150.8	125.4	112.4	21.9	4.0	0.1	0.0	718.3
4) A Norm	---	---	0.3	109.0	139.4	166.7	128.4	115.1	24.4	3.2	0.1	0.0	686.5
5) Wet	---	0.0	0.3	82.1	137.0	147.9	120.2	108.6	23.7	3.2	0.1	0.0	623.0
Wtd Avg.	---	---	3.5	133.9	154.6	156.7	128.9	116.4	23.9	3.7	0.1	---	721.9

J. Percolation to Groundwater Sub-Region 3 (outflow, recoverable)
source: CVGSM Sub-Region 1 - 4 & 6 - 8 * Step 4B. Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	19.8	6.5	12.7	114.8	113.6	108.4	117.2	116.5	26.2	1.9	3.6	---	641.3
2) Dry	---	---	6.6	91.7	97.6	98.5	91.9	92.8	17.1	1.2	9.4	27.3	534.0
3) B Norm	---	36.7	4.7	88.0	91.0	95.2	94.1	94.3	20.5	2.3	11.2	26.7	564.8
4) A Norm	---	---	4.8	87.3	95.1	94.2	91.5	89.0	20.4	1.8	16.4	41.4	542.0
5) Wet	---	28.4	6.3	73.4	88.6	95.1	90.1	91.0	19.3	2.6	24.2	81.4	600.5
Wtd Avg.	---	---	6.7	87.8	95.3	97.5	95.1	95.1	20.1	2.0	14.4	---	575.5

K. Evaporation Flows Sub-Region 3 (outflow, irrecoverable)
source: = 0.02 * (Step 5B + 5C - 5H)
= 0.02 * (Surface Water Diversion + Import - Export)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	0.2	1.0	6.9	6.9	7.8	8.1	7.2	1.8	0.8	0.3	---	41.1
2) Dry	---	---	0.3	6.4	8.2	9.7	9.8	8.8	1.7	0.9	0.3	0.2	46.3
3) B Norm	---	0.1	0.4	6.4	8.7	9.9	10.2	9.1	1.9	0.9	0.3	0.2	47.9
4) A Norm	---	---	0.1	5.9	8.4	10.4	10.4	9.2	2.1	0.6	0.3	0.2	47.7
5) Wet	---	0.1	0.2	4.8	8.5	10.1	10.3	9.2	2.1	0.7	0.3	0.2	46.4
Wtd Avg.	---	---	0.4	5.9	8.2	9.7	9.9	8.8	1.9	0.8	0.3	---	46.1

L. Sub-Region Water Balance 3

source: = Step 5.(A + B + C + D) - Step5. (E + F + G + H + I + J + K)
 = (Rain + Surface Water Diversions + Import + Groundwater Pumping) - (ET Rain +
 Runoff from Rain + ETAW + Export + Surface & Groundwater Return + Evaporation)

	Thousand Acre Feet												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1) Critical	15.2	-4.7	-3.1	26.2	1.6	-4.2	-4.3	-7.5	-23.9	-17.4	4.4	---	-17.8
2) Dry	---	---	-15.2	30.8	8.0	2.0	3.0	0.3	-21.4	-17.7	10.1	29.8	29.6
3) B Norm	---	-7.0	-16.6	29.0	6.6	1.7	4.4	1.8	-18.8	-13.3	14.6	21.2	23.5
4) A Norm	---	---	-23.4	19.2	7.9	4.2	4.8	2.3	-22.4	-13.7	16.4	27.4	22.7
5) Wet	---	-11.4	-13.1	25.4	9.5	4.3	4.7	2.5	-19.1	-11.6	18.1	17.5	27.0
Wtd Avg.	---	---	-14.3	26.7	7.3	2.1	3.1	0.5	-20.6	-14.4	13.5	---	20.5

M. Applied Water Ratio Sub-Region 3

source: = Step 5G / Step 5 (B + C+ D - H)
 = ETAW/(Surface Water Diversions + Import + Groundwater Pumping - Export)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.41	0.88	0.70	0.38	0.52	0.63	0.68	0.66	0.83	0.93	0.87	---	0.61
2) Dry	---	---	0.71	0.47	0.54	0.62	0.67	0.64	0.83	0.89	0.79	0.47	0.62
3) B Norm	---	0.40	0.74	0.47	0.54	0.62	0.67	0.64	0.81	0.87	0.74	0.42	0.62
4) A Norm	---	---	0.74	0.50	0.56	0.62	0.67	0.65	0.81	0.87	0.62	0.22	0.63
5) Wet	---	0.47	0.79	0.52	0.57	0.63	0.68	0.65	0.82	0.87	0.43	0.02	0.64
Wtd Avg.	---	---	0.74	0.48	0.55	0.62	0.67	0.65	0.82	0.88	0.66	---	0.63

N. Groundwater Check Sub-Region 3

source: = Step 5 (J - D)
 = Groundwater Return Flows - Groundwater Pumping

	Thousand Acre Feet												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1) Critical	19.2	2.3	-28.9	-145.8	-178.7	-255.4	-313.5	-244.8	-183.6	-15.5	1.8	---	-1,343.1
2) Dry	---	---	-2.6	-44.9	-80.6	-128.3	-144.2	-102.0	-138.1	-11.5	8.2	26.7	-617.3
3) B Norm	---	34.1	-3.6	-30.0	-59.1	-95.5	-104.0	-62.9	-128.9	-10.6	10.3	25.5	-424.7
4) A Norm	---	---	2.0	-16.0	-44.7	-103.0	-112.1	-73.8	-129.4	-11.7	15.3	40.5	-433.0
5) Wet	---	27.7	2.7	-22.4	-46.0	-82.9	-95.4	-57.3	-130.1	-6.2	23.9	80.4	-305.6
Wtd Avg.	---	---	-4.0	-44.4	-73.8	-121.1	-139.1	-95.4	-138.6	-10.3	13.5	---	-554.0

Step 6. Idealized Agricultural Potential

A. Export Adjustment

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 1

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 2

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 3

92% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 4

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 6

92% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 7

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region 8

note: Import (Step 5C) and Export (Step 5H) are in the water balance. In this Step (7D) Export water is considered water that flows through districts in Sub-Regions 4, 5, and 7. This water is available to make flow/timing changes

source: CVGSM Sub-Region 1 - 4 & 6 - 8

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	16.2	103.1	205.1	252.5	362.3	330.7	65.1	31.7	---	---	1,366.7
2) Dry	---	---	5.4	69.3	120.6	138.6	155.8	146.0	48.3	36.2	---	---	720.4
3) B Norm	---	---	6.3	66.4	101.3	124.2	132.8	121.8	49.1	36.3	---	---	638.4
4) A Norm	---	---	2.7	60.8	110.5	147.6	163.8	149.7	53.4	35.4	---	---	723.8
5) Wet	---	---	3.3	59.9	128.5	152.6	169.6	155.5	55.0	36.5	---	---	760.8
Wtd Avg.	---	---	6.0	69.2	128.8	156.0	183.3	168.6	53.4	35.6	---	---	800.8

B. Idealized Agricultural Potential

source: = Step 5 ((B + C + D) + Step 6A. - Step 5 (G + H))

= Surface Water Diversions + Import + Groundwater Diversions) - (ETAW + Export + Export Adjustment)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	44.3	481.5	510.1	532.8	628.5	575.6	114.3	35.5	---	---	2,922.6
2) Dry	---	---	12.8	311.7	391.9	410.4	394.0	370.8	89.1	42.6	---	---	2,023.2
3) B Norm	---	---	13.4	296.5	370.0	383.5	368.0	340.6	94.6	43.8	---	---	1,910.3
4) A Norm	---	---	5.2	260.3	358.4	422.0	399.6	368.1	100.9	41.2	---	---	1,955.6
5) Wet	---	---	5.6	221.8	366.4	408.3	395.3	368.5	101.7	41.7	---	---	1,909.4
Wtd Avg.	---	---	13.8	296.7	390.7	421.8	420.4	390.3	98.9	41.5	---	---	2,074.2

Step 7. Achievable Agricultural Potential

A. Farm Demand

assumes very low farm loss fraction for Sub-R 0.13

assumes very low farm loss fraction for Sub-R 0.13

assumes very low farm loss fraction for Sub-R 0.24

assumes very low farm loss fraction for Sub-R 0.25

assumes very low farm loss fraction for Sub-R 0.13

assumes very low farm loss fraction for Sub-R 0.14

assumes very low farm loss fraction for Sub-R 0.13

source: = ETAW / Farm High (1- loss fraction)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	83.2	290.8	424.2	602.7	721.6	602.7	316.4	65.9	---	---	3,107.6
2) Dry	---	---	23.3	273.0	407.0	562.8	624.9	521.9	257.7	65.6	---	---	2,736.1
3) B Norm	---	---	26.1	267.5	404.8	545.2	607.2	502.5	254.9	63.9	---	---	2,672.1
4) A Norm	---	---	9.1	254.7	399.3	570.2	624.9	519.7	264.9	50.5	---	---	2,693.3
5) Wet	---	---	11.2	227.6	410.6	548.8	609.6	506.4	268.8	46.6	---	---	2,629.6
Wtd Avg.	---	---	26.2	258.0	408.9	561.1	629.3	523.5	269.1	57.5	---	---	2,733.6

B. Groundwater Pumping after System Improvements

- existing farm applied water ratio for Sub-Region 1 = 0.7
- existing farm applied water ratio for Sub-Region 2 = 0.7
- existing farm applied water ratio for Sub-Region 3 = 0.7
- existing farm applied water ratio for Sub-Region 4 = 0.7
- existing farm applied water ratio for Sub-Region 6 = 0.7
- existing farm applied water ratio for Sub-Region 7 = 0.7
- existing farm applied water ratio for Sub-Region 8 = 0.7

source: = (1 - farm AW ratio * (1/farm AW ratio - 1/(1-farm very low loss fraction))) * Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	36.8	231.2	257.1	318.7	372.2	312.6	185.8	15.1	---	---	1,729.5
2) Dry	---	---	8.1	120.7	156.8	198.7	205.8	170.4	140.2	10.8	---	---	1,011.5
3) B Norm	---	---	7.3	104.2	132.1	166.9	172.7	137.7	135.2	11.0	---	---	867.0
4) A Norm	---	---	2.5	91.7	122.8	172.0	176.4	141.9	135.0	11.5	---	---	853.8
5) Wet	---	---	3.1	85.2	117.8	155.1	160.8	129.2	135.2	7.5	---	---	793.8
Wtd Avg.	---	---	9.4	117.2	148.6	191.1	203.2	166.1	142.9	10.5	---	---	989.0

C. Farm Demand not met by Groundwater Pumping

source: = Step 7.A - Step 7.B

= Farm Demand - Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	46.4	59.6	167.2	283.9	349.5	290.1	130.7	50.8	---	---	1,378.1
2) Dry	---	---	15.2	152.2	250.2	364.2	419.1	351.5	117.4	54.8	---	---	1,724.6
3) B Norm	---	---	18.8	163.3	272.7	378.4	434.5	364.8	119.7	52.9	---	---	1,805.1
4) A Norm	---	---	6.5	163.0	276.5	398.2	448.5	377.8	129.9	39.0	---	---	1,839.4
5) Wet	---	---	8.1	142.4	292.9	393.7	448.8	377.2	133.6	39.2	---	---	1,835.8
Wtd Avg.	---	---	16.7	140.8	260.3	370.0	426.0	357.4	126.2	47.1	---	---	1,744.6

D. Water Supplier Delivery to Meet Farm Demand

assumes district loss fraction of 0.08

source: = Step 7C / District High (1- loss fraction)

= Farm Demand not met by Groundwater Pumping/(1 - 0.08)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	50.4	64.8	181.7	308.6	379.8	315.3	142.0	55.2	---	---	1,497.9
2) Dry	---	---	16.6	165.5	271.9	395.8	455.6	382.1	127.7	59.6	---	---	1,874.6
3) B Norm	---	---	20.4	177.5	296.4	411.3	472.3	396.6	130.1	57.5	---	---	1,962.0
4) A Norm	---	---	7.1	177.2	300.5	432.8	487.5	410.7	141.2	42.4	---	---	1,999.4
5) Wet	---	---	8.8	154.8	318.3	427.9	487.8	410.0	145.2	42.6	---	---	1,995.4
Wtd Avg.	---	---	18.2	153.0	283.0	402.2	463.1	388.5	137.1	51.2	---	---	1,896.3

E. Achievable Agricultural Potential

source = Step 5.(B + C - H) + Step 6A - Step 7D.

= Surface Water Diversions + Import - Export + Export Adjustment - Water Supplier Delivery to Meet Farm Demand

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	16.7	384.3	370.0	334.5	389.7	376.4	11.7	14.6	---	---	1,897.9
2) Dry	---	---	5.4	222.3	259.9	227.1	190.3	201.5	6.5	21.8	---	---	1,134.8
3) B Norm	---	---	5.0	209.1	239.2	206.1	170.5	178.1	12.9	23.5	---	---	1,044.3
4) A Norm	---	---	2.4	177.4	229.4	236.8	196.4	200.0	16.0	25.1	---	---	1,083.5
5) Wet	---	---	2.0	147.1	233.8	230.0	197.0	204.6	15.6	26.8	---	---	1,056.9
Wtd Avg.	---	---	5.4	212.0	258.1	239.0	215.1	220.3	12.5	23.2	---	---	1,185.6

F. Groundwater Check after System Improvements

$$\text{source} = (0.13 * 0.80 * \text{ETAW}) + (0.13 * 0.80 * \text{ETAW}) + (0.04 * (\text{Farm Demand w/o Groundwater} - \text{Water Supplier Delivery})) - \text{Groundwater Pumping}$$

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	-30.3	-222.2	-236.9	-285.2	-338.5	-284.4	-168.5	-8.8	---	---	-1,574.7
2) Dry	---	---	-6.1	-99.9	-124.2	-151.8	-153.1	-125.5	-120.4	-4.2	---	---	-785.2
3) B Norm	---	---	-4.9	-82.0	-96.1	-117.8	-117.0	-89.9	-114.7	-4.5	---	---	-626.8
4) A Norm	---	---	-1.7	-68.8	-86.6	-121.5	-120.7	-93.7	-114.0	-7.1	---	---	-614.0
5) Wet	---	---	-2.1	-64.6	-79.9	-104.7	-104.2	-80.7	-112.9	-2.7	---	---	-551.8
Wtd Avg.	---	---	-7.2	-97.4	-114.8	-144.0	-150.8	-121.2	-122.4	-4.8	---	---	-762.7

GW Losses to Farm Fraction

A. Quantifiable Objective

$$\text{source} = \text{minimum (Step 3A. , Step 7E.)}$$

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	---	48.2	---	---	---	---	---	---	---	48.2
2) Dry	---	---	---	---	44.1	---	---	---	---	---	---	---	44.1
3) B Norm	---	---	---	20.3	160.1	---	---	---	---	---	---	---	180.4
4) A Norm	---	---	---	---	---	---	---	---	---	---	---	---	0.0
5) Wet	---	---	---	---	---	---	---	---	---	---	---	---	0.0
Wtd Avg.	---	---	---	---	---	---	---	---	---	---	---	---	53.1

Detail 25, Decrease Nonproductive ET, SubRegion 3

Step 1. Quantified Targets

A. Acreage Assumed for Reduction of Nonproductive ET

source: CVGSM Sub-Region 3

Crop	Potential for ET Red.	Existing		Assumed for ET Reduction*	
		acres	percent	acres	percent
Pasture	No	16,200	0%	0	0%
Alfalfa	No	27,800	0%	0	0%
Sugar Beet	No	16,400	0%	0	0%
Field	No	25,000	0%	0	0%
Rice	No	154,000	0%	0	0%
Truck	Yes	17,700	30%	5,310	30%
Tomato	Yes	24,100	30%	7,230	30%
Orchard	Yes	34,200	30%	10,260	30%
Grains	No	52,100	0%	0	0%
Vineyard	Yes	4,200	30%	1,260	30%
Cotton	No	0	0%	0	0%
Citrus and Olives	Yes	1,300	30%	390	30%
Total		373,000		24,450	7%

*The Assumed Acreage for ET Reduction is 30% of the crops that have the Potential for ET Reduction.

B. Existing ET for Sub-Region 3

source: CVGSM

Crop													Inches
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Pasture	---	---	---	---	---	---	---	---	---	---	---	---	---
Alfalfa	---	---	---	---	---	---	---	---	---	---	---	---	---
Sugar Beet	---	---	---	---	---	---	---	---	---	---	---	---	---
Field	---	---	---	---	---	---	---	---	---	---	---	---	---
Rice	---	---	---	---	---	---	---	---	---	---	---	---	---
Truck	0.00	0.00	0.00	1.70	1.00	2.00	3.70	6.60	4.60	1.00	0.00	0.00	20.60
Tomato	0.00	0.00	0.00	1.70	3.20	6.90	8.50	5.40	2.70	0.00	0.00	0.00	28.40
Orchard	1.00	1.80	2.80	2.80	4.40	5.90	6.90	5.80	4.30	2.50	1.50	1.00	40.70
Grains	---	---	---	---	---	---	---	---	---	---	---	---	---
Vineyard	0.00	0.00	0.00	1.65	3.40	5.60	6.70	5.50	3.70	1.40	0.00	0.00	27.95
Cotton	---	---	---	---	---	---	---	---	---	---	---	---	---
Citrus and Olives	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	---
Total	0.42	0.76	1.17	2.13	3.19	5.24	6.56	5.75	3.79	1.34	0.63	0.42	31.39

C. ET from Rain for Sub-Region 3

source: CVGSM

													Inches
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.60	0.88	0.79	0.00	0.37	0.23	0.06	0.22	0.66	1.12	0.51	0.49	5.92
2) Dry	0.66	0.97	1.44	0.00	0.26	0.22	0.16	0.31	0.95	1.21	0.61	0.58	7.36
3) B Norm	0.68	1.06	1.42	0.00	0.18	0.28	0.24	0.41	0.99	1.21	0.71	0.60	7.78
4) A Norm	0.68	1.07	1.61	0.00	0.29	0.14	0.14	0.27	0.89	1.38	0.76	0.64	7.87
5) Wet	0.69	1.04	1.56	0.06	0.13	0.27	0.21	0.34	0.79	1.42	0.90	0.70	8.11
Wtd Avg.	0.67	1.01	1.41	0.02	0.22	0.24	0.18	0.32	0.86	1.29	0.73	0.62	7.55

D. Existing ETAW for Sub-Region 3

source: calculated = Step 1B.(Average Total) - Step 1C., (set to 0 if Step 1B. - Step 1C. <0)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.39	2.13	2.82	5.01	6.50	5.53	3.14	0.22	0.12	0.00	25.84
2) Dry	0.00	0.00	0.00	2.13	2.92	5.02	6.40	5.44	2.84	0.13	0.02	0.00	24.90
3) B Norm	0.00	0.00	0.00	2.13	3.01	4.96	6.31	5.34	2.81	0.12	0.00	0.00	24.69
4) A Norm	0.00	0.00	0.00	2.13	2.90	5.09	6.41	5.48	2.90	0.00	0.00	0.00	24.92
5) Wet	0.00	0.00	0.00	2.07	3.06	4.97	6.35	5.40	3.01	0.00	0.00	0.00	24.85
Wtd Avg.	0.00	0.00	0.05	2.11	2.96	5.00	6.38	5.43	2.93	0.08	0.02	0.00	24.97

E. Target ETAW for Sub-Region 3

source: calculated = Step 1D. * 90%

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.00	0.00	0.35	1.92	2.54	4.51	5.85	4.97	2.82	0.19	0.11	0.00	23.26
2) Dry	0.00	0.00	0.00	1.92	2.63	4.52	5.76	4.90	2.56	0.11	0.02	0.00	22.41
3) B Norm	0.00	0.00	0.00	1.92	2.71	4.46	5.68	4.81	2.53	0.11	0.00	0.00	22.22
4) A Norm	0.00	0.00	0.00	1.92	2.61	4.59	5.77	4.93	2.61	0.00	0.00	0.00	22.43
5) Wet	0.00	0.00	0.00	1.86	2.75	4.47	5.71	4.86	2.71	0.00	0.00	0.00	22.37
Wtd Avg.	0.00	0.00	0.05	1.90	2.67	4.50	5.74	4.88	2.64	0.07	0.02	0.00	22.47

Step 2. Reference Condition

For ET Reduction the Reference Condition is the existing Crop ET, Step 1B.

Step 3. Quantified Targeted Benefit Change

A. Quantified Targeted Benefit Change for Sub-Region 3

source: calculated = Step 1D - Step 1E

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	0.21	0.28	0.50	0.65	0.55	0.31	---	---	---	2.51
2) Dry	---	---	---	0.21	0.29	0.50	0.64	0.54	0.28	---	---	---	2.48
3) B Norm	---	---	---	0.21	0.30	0.50	0.63	0.53	0.28	---	---	---	2.46
4) A Norm	---	---	---	0.21	0.29	0.51	0.64	0.55	0.29	---	---	---	2.49
5) Wet	---	---	---	0.21	0.31	0.50	0.63	0.54	0.30	---	---	---	2.49
Wtd Avg.	---	---	---	0.21	0.30	0.50	0.64	0.54	0.29	---	---	---	2.48

B. Quantified Targeted Benefit Change for Sub-Region 3

source: calculated = Step 1D - Step 1E

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	---	0.43	0.57	1.02	1.32	1.13	0.64	---	---	---	5.1
2) Dry	---	---	---	0.43	0.60	1.02	1.30	1.11	0.58	---	---	---	5.0
3) B Norm	---	---	---	0.43	0.61	1.01	1.29	1.09	0.57	---	---	---	5.0
4) A Norm	---	---	---	0.43	0.59	1.04	1.31	1.12	0.59	---	---	---	5.1
5) Wet	---	---	---	0.42	0.62	1.01	1.29	1.10	0.61	---	---	---	5.1
Wtd Avg.	---	---	---	0.43	0.60	1.02	1.30	1.11	0.60	---	---	---	5.1

Step 4. Area Affected by Targeted Benefit

Area affected are the 24,450 acres identified in Step 1A.

Step 5. Water Flow Path Elements

The flow path elements used in this analysis are given in Step 1.

Step 6. Idealized Agricultural Potential

Additional ET research is required to determine this component.

Step 7. Achievable Agricultural Potential

The farm Available Agricultural Potential is the same as Step 3B.

Step 8. Quantifiable Objective

A. For ET Reduction the Quantifiable Objective is Step 3B

Detail 27, Provide long-term diversion flexibility to increase the water supply for beneficial uses.

Step 1. Quantified Targets

A. Percentage of Subregion 3 in each Wetland Region

source: GIS analysis

Basin	Basin Acres	Sub-Region 3 Acres	Ratio Acreage in Sub-Region to Total Acreage
Colusa	1,100,765	604,121	0.55
Butte	574,618	1,076	--
Sutter	224,142	178	--
American	517,893	0	--
Yolo	514,963	593	--
Delta	1,332,584	1	--
Suisun	99,311	1	--
San Joaquin	1,877,034	1	--
Tulare	3,523,884	1	--

B. Annual Water Need for Optimum Habitat by Wetland Type

source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Seasonal Wetlands	Semi-Permanent Wetlands	Permanent Wetlands	Annual Total
-----Acre Feet-----				
Colusa	43,435	7,563	6,771	57,769
Butte	72,923	11,337	10,150	94,410
Sutter	469	81	73	622
American	5,695	992	888	7,575
Yolo	25,755	4,484	4,015	34,254
Delta	10,053	1,843	1,650	13,546
Suisun	119,995	21,993	19,690	161,677
San Joaq.	188,480	20,663	15,856	225,000
Tulare	15,640	1,854	1,415	18,908

C. Fraction of Water Need Requirements by Month as a Percentage of Total Water Need- Seasonal Wetlands

source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colusa	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
Butte	0.04	0.04	0.04	0.00	0.18	0.00	0.00	0.16	0.36	0.09	0.07	0.04	1.0
Sutter	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
American	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
Yolo	0.04	0.04	0.04	0.00	0.14	0.00	0.00	0.18	0.36	0.08	0.08	0.04	1.0
Delta	0.04	0.04	0.04	0.05	0.00	0.00	0.00	0.19	0.42	0.08	0.08	0.04	1.0
Suisun	0.04	0.04	0.04	0.05	0.00	0.00	0.00	0.19	0.42	0.08	0.08	0.04	1.0
San Joaq.	0.04	0.04	0.00	0.00	0.15	0.05	0.00	0.15	0.38	0.08	0.08	0.04	1.0
Tulare	0.04	0.04	0.00	0.15	0.00	0.11	0.00	0.09	0.38	0.08	0.08	0.04	1.0

D. Fraction of Water Need Requirements by Month as a Percentage of Total Water Need- Semi-Permanent Wetlands
 source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colusa	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Butte	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Sutter	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
American	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Yolo	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Delta	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Suisun	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
San Joaq.	0.03	0.03	0.05	0.07	0.07	0.14	0.14	0.00	0.00	0.41	0.05	0.03	1.0
Tulare	0.03	0.04	0.06	0.08	0.08	0.13	0.13	0.00	0.00	0.38	0.06	0.04	1.0

E. Fraction of Water Need Requirements by Month as a Percentage of Total Water Need- Permanent Wetlands
 source: Central Valley Wetlands Water Supply Investigations (August, 2000)

Basin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Colusa	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Butte	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Sutter	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
American	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Yolo	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Delta	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Suisun	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
San Joaq.	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0
Tulare	0.02	0.02	0.04	0.08	0.11	0.15	0.15	0.15	0.13	0.08	0.06	0.02	1.0

F. Target Water Application for Private Wetlands in Sub-Region 3
 source: calculated using Step1A through Step 1E

	Thousand Acre Feet												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Seasonal	1.0	1.0	1.0	-	3.3	-	-	4.3	8.6	1.9	1.9	1.0	23.8
Semi-Perman	0.1	0.1	0.2	0.3	0.3	0.6	0.6	-	-	1.7	0.2	0.1	4.2
Permanent	0.1	0.1	0.1	0.3	0.4	0.6	0.6	0.6	0.5	0.3	0.2	0.1	3.7
Total	1.1	1.1	1.3	0.6	4.0	1.1	1.1	4.9	9.1	3.9	2.3	1.1	31.7

Step 2. Reference Condition

A. Annual Available Water Supply by Wetland Type
 source: Central Valley Wetlands Water Supply Investigations

Basin	Wetlands	Wetlands	Permanent Wetlands	Total
-----Acre Feet-----				
Colusa	36,601	6,625	6,101	49,327
Butte	57,797	9,261	8,667	75,725
Sutter	355	66	62	483
American	4,328	804	754	5,886
Yolo	25,755	4,484	4,015	34,254
Delta	10,053	1,843	1,650	13,546
Suisun	119,995	21,993	19,690	161,678
San Joaquin	181,676	19,922	15,403	217,001
Tulare	15,181	1,802	1,373	18,356

B. Available Water for Private Wetlands in Sub-Region 3

source: calculated based on Step 2A and steps 1A,1C,1D, and 1E

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Seasonal	0.8	0.8	0.8	-	2.8	-	-	3.6	7.2	1.6	1.6	0.8	20.1
Semi-Perm.	0.1	0.1	0.2	0.2	0.2	0.5	0.5	-	-	1.5	0.2	0.1	3.6
Permanent	0.1	0.1	0.1	0.3	0.4	0.5	0.5	0.5	0.4	0.3	0.2	0.1	3.3
Total	1.0	1.0	1.1	0.5	3.4	1.0	1.0	4.1	7.7	3.3	2.0	1.0	27.1

Step 3. Quantified Targeted Benefit Change

A. Additional Water Required for Optimum Management of Private Wetlands in Sub-Region

source: calculated: Step 1F- Step 2B

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Seasonal	0.2	0.2	0.2	-	0.5	-	-	0.7	1.4	0.3	0.3	0.2	3.8
Semi-Perm.	0.0	0.0	0.0	0.0	0.0	0.1	0.1	-	-	0.2	0.0	0.0	0.5
Permanent	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4
Total	0.2	0.2	0.2	0.1	0.6	0.1	0.1	0.7	1.4	0.5	0.3	0.2	4.6

Step 4. Area Affected By Targeted Benefit

This analysis assumes that all of the agricultural lands in the sub-region could potentially contribute to the provision of additional waters for wetlands.

Step 5. Water Flow Path Elements

A. Rain Sub-Region (inflow)

source: CVGSM Sub-Region 3

Flow Path Not Affected

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	57.7	35.2	31.4	15.2	19.0	6.2	2.1	10.0	12.4	23.1	31.8	47.0	291.1
2) Dry	59.3	51.1	59.1	23.7	11.7	6.6	6.0	12.4	27.6	25.3	54.0	73.2	409.9
3) B Norm	68.6	74.2	39.3	22.9	8.0	7.8	10.9	19.5	34.0	36.6	62.4	65.9	450.0
4) A Norm	105.3	99.8	55.3	24.5	12.8	3.5	5.5	10.7	28.7	53.5	80.5	80.5	560.5
5) Wet	104.4	75.6	59.1	38.2	8.9	8.6	7.4	16.1	21.6	63.8	97.0	118.0	618.6
Wtd Avg.	80.7	67.5	50.9	26.9	11.2	7.0	6.8	14.5	25.2	42.7	69.3	82.9	485.7

B. Surface Water Diversions Sub-Region (inflow)

source: CVGSM Sub-Region 3

Flow Path Not Affected

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	2.5	22.6	155.7	144.1	153.2	154.1	143.2	30.2	10.1	1.0	0.0	816.7
2) Dry	0.0	1.0	6.3	131.4	161.2	179.6	177.5	161.4	25.2	12.1	1.5	0.0	857.2
3) B Norm	0.0	0.3	6.9	131.4	166.5	178.9	180.4	163.8	27.9	11.0	1.2	0.0	868.2
4) A Norm	0.0	0.0	1.6	121.0	158.6	186.0	181.1	163.1	31.0	7.3	1.2	0.0	850.9
5) Wet	0.0	0.0	2.1	100.0	159.9	181.4	180.5	162.4	31.8	6.7	0.9	0.0	825.7
Wtd Avg.	0.0	0.6	6.6	123.7	159.3	177.4	176.4	160.0	29.2	9.3	1.1	0.0	843.7

C. Import Sub-Region (inflow)

source: CVGSM Sub-Region 3

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	3.3	3.6	5.6	35.1	37.3	43.0	44.5	42.1	16.4	16.2	12.4	7.1	266.7
2) Dry	3.3	3.1	2.7	49.0	64.3	75.3	76.0	71.9	22.1	19.8	12.4	7.1	407.0
3) B Norm	3.4	2.8	3.6	56.7	77.6	87.6	89.9	84.0	24.7	20.1	12.8	6.9	470.1
4) A Norm	3.4	2.6	1.7	55.3	76.4	92.3	91.3	85.3	26.0	17.7	12.7	7.4	472.1
5) Wet	3.5	2.7	1.9	45.6	76.7	89.9	90.8	84.9	26.5	19.1	12.9	7.6	462.2
Wtd Avg.	3.4	2.9	2.9	48.5	68.8	80.2	81.2	76.2	23.7	18.9	12.7	7.2	426.8

D. Groundwater Pumping Sub-Region (inflow)

source: CVGSM Sub-Region 3

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.3	0.8	10.9	94.8	98.8	120.0	116.6	98.2	85.1	7.0	0.4	0.3	633.1
2) Dry	0.3	0.6	1.9	42.0	54.8	66.2	63.0	53.8	76.6	2.6	0.3	0.3	362.5
3) B Norm	0.3	0.4	1.5	31.8	39.5	47.8	45.5	37.8	74.3	3.4	0.3	0.8	283.3
4) A Norm	0.3	0.3	0.7	26.7	36.5	46.9	42.6	36.7	71.7	2.7	0.3	0.3	265.7
5) Wet	0.3	0.3	0.8	29.2	34.5	42.8	40.3	34.2	73.5	1.7	0.3	0.3	258.2
Wtd Avg.	0.3	0.4	2.5	40.9	48.9	59.9	56.9	48.1	75.7	3.1	0.3	0.4	337.4

E. ET Rain Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 3

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	18.7	27.3	24.5	-3.8	11.4	7.3	1.7	6.9	20.4	34.9	15.9	15.2	180.3
2) Dry	20.4	30.1	44.9	-4.9	8.2	6.8	4.9	9.5	29.5	37.7	19.0	17.9	224.0
3) B Norm	21.1	32.9	44.2	-5.6	5.6	8.7	7.5	12.7	30.6	37.7	22.2	18.7	236.2
4) A Norm	21.1	33.2	50.1	-2.4	9.0	4.5	4.5	8.3	27.6	42.8	23.5	20.0	242.1
5) Wet	21.5	32.4	48.5	1.9	4.0	8.4	6.5	10.7	24.4	44.1	28.0	21.8	252.2
Wtd Avg.	20.7	31.4	43.9	-2.5	6.9	7.4	5.5	10.0	26.8	40.0	22.6	19.1	231.7

F. Runoff from Rain Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 3

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	24.5	13.5	10.7	3.1	7.3	1.0	0.3	2.8	3.1	6.2	8.3	16.6	97.4
2) Dry	28.8	25.4	28.8	6.6	2.5	1.4	1.4	3.3	10.9	8.2	20.0	32.1	169.2
3) B Norm	35.5	40.6	16.7	6.4	1.3	1.3	2.7	6.2	13.1	13.3	25.8	31.1	194.0
4) A Norm	61.5	59.1	26.9	6.6	3.1	0.3	1.0	3.5	11.4	22.4	36.6	41.8	274.2
5) Wet	62.8	44.1	29.3	12.7	1.6	1.8	1.3	5.0	7.4	30.5	48.1	70.3	315.0
Wtd Avg.	44.2	37.0	23.9	8.0	2.7	1.3	1.4	4.4	9.3	17.6	30.4	42.8	222.9

G. ETAW Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 3

Flow Path Not Affected

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	1.7	6.2	27.6	100.2	140.9	197.9	219.0	182.7	110.2	32.1	12.1	4.5	1,035.1
2) Dry	1.2	3.9	7.4	101.2	144.1	198.4	215.8	180.1	101.0	30.5	11.3	3.3	998.2
3) B Norm	0.7	1.3	8.7	101.9	146.8	196.5	213.1	177.0	99.9	30.6	10.7	3.1	990.2
4) A Norm	0.3	1.0	2.8	98.8	143.3	200.7	216.2	181.3	102.9	24.2	8.6	1.4	981.5
5) Wet	0.3	1.8	3.6	94.4	148.3	196.7	214.2	179.0	106.1	24.3	5.9	0.0	974.5
Wtd Avg.	0.8	2.7	8.5	98.8	145.4	197.7	215.2	179.6	103.8	28.0	9.3	2.2	992.0

H. Export Sub-Region (outflow, irrecoverable)

source: CVGSM Sub-Region 3

Thousand Acre Feet

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.1	1.3	4.6	4.5	4.5	5.3	4.2	1.5	0.5	0.0	0.0	26.6
2) Dry	0.0	0.0	0.3	2.6	4.1	4.7	5.2	4.2	1.8	0.7	0.0	0.0	23.8
3) B Norm	0.0	0.0	0.4	2.7	4.3	4.7	5.2	4.2	1.8	0.6	0.0	0.0	24.1
4) A Norm	0.0	0.0	0.0	2.0	3.7	4.8	5.2	4.2	2.0	0.4	0.0	0.0	22.3
5) Wet	0.0	0.0	0.1	1.5	3.6	4.5	5.1	4.1	1.9	0.3	0.0	0.0	21.2
Average	0.0	0.0	0.4	2.4	4.0	4.6	5.2	4.2	1.8	0.5	0.0	0.0	23.2

I. Surface Runoff Sub-Region (outflow, recoverable)

source: CVGSM Sub-Region 3

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.0	0.3	3.1	96.7	57.7	45.6	28.7	30.4	9.3	2.8	0.0	0.0	274.6
2) Dry	0.0	0.2	0.8	47.6	57.5	47.2	30.3	33.8	8.9	2.9	0.0	0.0	229.2
3) B Norm	0.0	0.0	0.7	48.4	62.4	43.5	28.0	31.1	8.9	2.7	0.0	0.0	225.6
4) A Norm	0.0	0.0	0.0	32.1	50.1	51.5	29.4	32.8	9.7	2.1	0.0	0.0	207.6
5) Wet	0.0	0.0	0.0	25.2	50.9	43.5	28.1	30.0	9.3	2.4	0.0	0.0	189.5
Average	0.0	0.1	0.7	45.3	55.5	45.7	28.8	31.5	9.2	2.6	0.0	0.0	219.5

J. Percolation to Groundwater Sub-Region (outflow, recoverable)

source: CVGSM Sub-Region 3

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	6.6	0.7	5.2	73.9	68.7	61.8	54.6	58.0	8.3	0.3	0.7	4.5	343.3
2) Dry	11.1	4.1	1.7	63.9	66.8	64.9	57.7	61.0	10.3	0.0	3.3	9.7	354.5
3) B Norm	14.2	7.1	0.9	61.3	61.9	63.3	61.9	66.2	14.0	0.0	3.3	11.3	365.5
4) A Norm	22.8	11.7	0.3	63.5	67.3	62.5	57.3	59.4	12.4	0.0	7.6	18.0	383.0
5) Wet	25.3	8.6	0.6	49.1	61.9	63.2	57.1	61.3	11.8	0.4	11.4	29.0	379.8
Average	17.0	6.6	1.5	60.1	64.6	63.3	57.9	61.5	11.5	0.2	6.0	16.3	366.7

K. Evaporation Flows Sub-Region

source: = 0.02 * (Step 5B + 5C - 5H)

= 0.02 * (Surface Water Diversion + Import - Export)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.1	0.1	0.5	3.7	3.5	3.8	3.9	3.6	0.9	0.5	0.3	0.1	21.1
2) Dry	0.1	0.1	0.2	3.6	4.4	5.0	5.0	4.6	0.9	0.6	0.3	0.1	24.8
3) B Norm	0.1	0.1	0.2	3.7	4.8	5.2	5.3	4.9	1.0	0.6	0.3	0.1	26.3
4) A Norm	0.1	0.1	0.1	3.5	4.6	5.5	5.3	4.9	1.1	0.5	0.3	0.1	26.0
5) Wet	0.1	0.1	0.1	2.9	4.7	5.3	5.3	4.9	1.1	0.5	0.3	0.2	25.3
Wtd Avg.	0.1	0.1	0.2	3.4	4.5	5.1	5.0	4.6	1.0	0.6	0.3	0.1	24.9

L. Sub-Region Water Balance

source: = Step 5.(A + B + C + D) - Step5. (E + F + G + H + I + J + K)

= (Rain + Surface Water Diversions + Import + Groundwater Pumping) - (ET Rain +

Runoff from Rain + ETAW + Export + Surface & Groundwater Return + Evaporation)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	9.7	-6.1	-2.5	22.4	5.3	0.4	3.8	4.8	-9.4	-20.9	8.4	13.5	29.3
2) Dry	1.3	-8.0	-14.1	25.5	4.3	-0.6	2.3	3.0	-11.8	-20.9	14.3	17.5	12.9
3) B Norm	0.8	-4.2	-20.5	23.9	4.4	-1.2	2.8	2.9	-8.5	-14.5	14.5	9.3	9.8
4) A Norm	3.3	-2.3	-20.9	23.4	3.2	-1.1	1.6	1.5	-9.8	-11.2	18.1	6.8	12.5
5) Wet	-1.8	-8.3	-18.3	25.2	5.0	-0.8	1.3	2.7	-8.7	-11.3	17.4	4.6	7.1
Wtd Avg.	1.6	-6.3	-16.0	24.4	4.5	-0.7	2.2	2.9	-9.6	-15.4	15.0	10.0	12.6

M. Applied Water Ratio Sub-Region

source: = Step 5G / Step 5 (B + C + D - H)

= ETAW/(Surface Water Diversions + Import + Groundwater Pumping - Export)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	0.48	0.92	0.73	0.36	0.51	0.64	0.71	0.65	0.85	0.98	0.87	0.60	0.61
2) Dry	0.33	0.83	0.70	0.46	0.52	0.63	0.69	0.64	0.83	0.90	0.79	0.45	0.62
3) B Norm	0.18	0.37	0.75	0.47	0.53	0.63	0.69	0.63	0.80	0.91	0.74	0.40	0.62
4) A Norm	0.09	0.35	0.69	0.49	0.54	0.63	0.70	0.65	0.81	0.89	0.61	0.18	0.63
5) Wet	0.08	0.59	0.75	0.54	0.55	0.64	0.70	0.65	0.82	0.89	0.42	0.00	0.64
Wtd Avg.	0.2	0.6	0.7	0.5	0.5	0.6	0.7	0.6	0.8	0.9	0.7	0.3	0.6

N. Groundwater Check Sub-Region

source: = Step 5 (J - D)
= Groundwater Return Flows - Groundwater Pumping

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	6.3	-0.1	-5.7	-20.9	-30.1	-58.1	-62.0	-40.2	-76.8	-6.6	0.2	4.2	-289.8
2) Dry	10.8	3.5	-0.2	21.9	12.0	-1.3	-5.3	7.2	-66.3	-2.6	3.0	9.4	-8.0
3) B Norm	13.9	6.7	-0.6	29.5	22.5	15.5	16.4	28.4	-60.4	-3.4	3.0	10.5	82.1
4) A Norm	22.5	11.5	-0.4	36.9	30.8	15.6	14.8	22.7	-59.2	-2.7	7.3	17.7	117.4
5) Wet	25.0	8.3	-0.2	19.9	27.3	20.4	16.9	27.1	-61.6	-1.3	11.1	28.7	121.6
Wtd Avg.	16.7	6.2	-1.0	19.2	15.8	3.5	1.1	13.4	-64.1	-2.9	5.7	15.9	29.3

6. Idealized Agricultural Potential

A. Export Adjustment

0% of Export (Step 5H.) water is available for flow/timing changes in Sub-Region
note: Import (Step 5C) and Export (Step 5H) are in the water balance. In this Step (7D) Export water is considered water that flows through districts in Sub-Regions 4, 5, and 7. This water is available to make flow/timing changes

source: CVGSM Sub-Region

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0
2) Dry	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0
3) B Norm	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0
4) A Norm	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0
5) Wet	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0
Wtd Avg.	N/A	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N/A	N/A	0.0

B. Idealized Agricultural Potential

source: = Step 5 ((B + C + D) + Step 6A. - Step 5 (G + H))
= Surface Water Diversions + Import + Groundwater Diversions) - (ETAW + Export + Export Adjustment)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	10.2	180.9	134.9	113.7	90.9	96.5	20.1	0.6	---	---	647.8
2) Dry	---	---	3.2	118.6	132.1	118.0	95.5	102.8	21.1	3.2	---	---	594.6
3) B Norm	---	---	2.8	115.3	132.4	113.1	97.4	104.4	25.2	3.2	---	---	593.8
4) A Norm	---	---	1.3	102.2	124.5	119.8	93.6	99.6	23.7	3.1	---	---	567.8
5) Wet	---	---	1.2	78.9	119.2	112.9	92.3	98.4	23.8	2.9	---	---	529.6
Wtd Avg.	N/A	N/A	3.2	111.8	127.6	115.1	94.1	100.5	23.0	2.8	N/A	N/A	578.1

7. Achievable Agricultural Potential

A. Farm Demand

assumes farm loss fraction of 0.24 for Sub-Region , values vary by SubRegion
source: = ETAW / Farm High (1- loss fraction)

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	36.4	131.8	185.4	260.4	288.1	240.4	145.0	42.3	---	---	1,329.7
2) Dry	---	---	9.7	133.2	189.7	261.0	284.0	237.0	132.9	40.1	---	---	1,287.6
3) B Norm	---	---	11.4	134.1	193.1	258.5	280.5	232.8	131.5	40.3	---	---	1,282.2
4) A Norm	---	---	3.6	130.0	188.6	264.0	284.5	238.6	135.4	31.8	---	---	1,276.5
5) Wet	---	---	4.7	124.3	195.1	258.8	281.8	235.5	139.6	31.9	---	---	1,271.8
Wtd Avg.	---	---	11.2	130.0	191.3	260.2	283.2	236.3	136.6	36.9	---	---	1,285.7

B. Groundwater Pumping after System Improvements

Existing Farm Efficiency for Sub-Region = 0.70
 source: = (1 - 0.7 * (1/0.7-1/(1-Farm Loss Fraction))) * Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	10.0	87.3	91.0	110.5	107.4	90.5	78.4	6.4	---	---	581.5
2) Dry	---	---	1.8	38.7	50.5	61.0	58.0	49.6	70.6	2.4	---	---	332.6
3) B Norm	---	---	1.3	29.3	36.4	44.0	41.9	34.8	68.5	3.1	---	---	259.3
4) A Norm	---	---	0.7	24.6	33.6	43.2	39.2	33.8	66.0	2.5	---	---	243.6
5) Wet	---	---	0.8	26.9	31.8	39.4	37.1	31.5	67.7	1.6	---	---	236.8
Wtd Avg.	---	---	2.3	37.7	45.0	55.1	52.4	44.3	69.7	2.8	---	---	309.4

C. Farm Demand not met by Groundwater Pumping

source: = Step 7.A - Step 7.B
 = Farm Demand - Groundwater Pumping

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	26.3	44.5	94.4	149.9	180.8	149.9	66.6	35.8	---	---	748.1
2) Dry	---	---	7.9	94.5	139.2	200.0	226.0	187.4	62.3	37.8	---	---	955.0
3) B Norm	---	---	10.1	104.8	156.7	214.5	238.5	198.1	63.0	37.2	---	---	1,022.9
4) A Norm	---	---	2.9	105.4	155.0	220.8	245.3	204.8	69.4	29.3	---	---	1,032.9
5) Wet	---	---	3.9	97.3	163.3	219.4	244.7	204.0	72.0	30.4	---	---	1,035.0
Wtd Avg.	---	---	8.9	92.3	146.3	205.0	230.8	192.0	66.9	34.0	---	---	976.3

D. Water Supplier Delivery to Meet Farm Demand

assumes district loss fraction of 0.08
 source: = Step 7C / District High (1- loss fraction)
 = Farm Demand not met by Groundwater Pumping/(1 - 0.08)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	28.6	48.3	102.6	162.9	196.5	163.0	72.3	38.9	---	---	813.2
2) Dry	---	---	8.6	102.7	151.3	217.4	245.6	203.7	67.8	41.0	---	---	1,038.0
3) B Norm	---	---	10.9	113.9	170.4	233.2	259.3	215.3	68.5	40.4	---	---	1,111.9
4) A Norm	---	---	3.2	114.6	168.4	240.0	266.6	222.6	75.5	31.9	---	---	1,122.7
5) Wet	---	---	4.3	105.8	177.6	238.5	266.0	221.7	78.2	33.0	---	---	1,125.0
Wtd Avg.	---	---	9.7	100.4	159.0	222.9	250.9	208.7	72.7	37.0	---	---	1,061.2

E. Achievable Agricultural Potential

source = Step 5.(B + C - H) + Step 6A - Step 7D.
 = Surface Water Diversions + Import - Export + Export Adjustment - Water Supplier Delivery to Meet Farm Demand

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	0.0	137.9	74.4	28.7	0.0	18.0	0.0	0.0	---	---	259.0
2) Dry	---	---	0.0	75.1	70.1	32.8	2.7	25.4	0.0	0.0	---	---	206.1
3) B Norm	---	---	0.0	71.5	69.3	28.6	5.7	28.3	0.0	0.0	---	---	203.5
4) A Norm	---	---	0.1	59.7	62.9	33.5	0.7	21.7	0.0	0.0	---	---	178.5
5) Wet	---	---	0.0	38.3	55.4	28.3	0.2	21.5	0.0	0.0	---	---	143.8
Wtd Avg.	---	---	0.0	69.4	65.1	30.1	1.9	23.3	0.0	0.0	---	---	189.9

F. Groundwater Check after System Improvements

$$\text{source} = (0.24 * 0.80 * \text{ETA W}) + (0.04 * (\text{Farm Demand w/o Groundwater} - \text{Water Supplier Delivery})) - \text{Groundwater Pumping}$$

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1) Critical	---	---	-5.7	-75.7	-72.1	-82.5	-75.1	-63.7	-64.2	-0.9	---	---	-440.0
2) Dry	---	---	-0.6	-22.9	-27.7	-28.8	-22.4	-19.9	-57.5	3.1	---	---	-176.5
3) B Norm	---	---	0.2	-12.6	-11.9	-10.8	-5.4	-4.5	-55.4	2.4	---	---	-98.0
4) A Norm	---	---	-0.2	-8.1	-9.5	-9.2	-1.9	-2.6	-52.1	1.8	---	---	-81.9
5) Wet	---	---	-0.2	-11.4	-6.6	-5.8	0.0	-0.5	-53.4	2.8	---	---	-75.1
Wtd Avg.	---	---	-0.9	-22.3	-21.5	-22.6	-16.3	-14.3	-56.0	2.2	---	---	-151.7

8. Quantifiable Objective

$$\text{source} = \min(\text{Step 3A Wtd Avg, Step 7E})$$

	Thousand Acre Feet												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Wtd Avg	---	---	0.0	0.1	0.6	0.1	0.1	0.7	0.0	0.0	---	---	1.7